Occupational Segregation by Sex and Race in Post-Apartheid South Africa: Some More Equal than the Other?

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Submitted to
(1) **Session 506: Gender and Work** (Irene Browne)
(2) **Session 505: Race and Ethnicity in Comparative Perspective** (Moshe Semyonov)
Annual Meetings of the Population Association of America, New York City, March 29-31, 2007

ABSTRACT

In South Africa, institutionalized *apartheid* exacerbated inequities in labor force outcomes, not just between the various races (Africans, Whites, Coloureds, and Asian-Indians), but also between the sexes. However, empirical knowledge of the *interplay* between these two systems of social oppression in determining occupational segregation remains somewhat scant. Using the 2001 Census, I will analyze occupational segregation by sex and race in South Africa. The main objectives of the study are: 1) to describe the separate, and then interacting, roles of gender and race in determining an individual's placement in gender segregated/integrated occupations, and 2) to analyze the micro- and macro-level determinants (e.g. human capital, family structure, local labor market characteristics) influence an individual's placement in gender segregated/integrated occupations across different geographical areas. Such an approach will allow us to compare any social group that differs from each other in terms of both race and gender.

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Rationale for study

In South Africa, institutionalized *apartheid* has exacerbated inequities in labor force outcomes, not just between the various races (Africans, Whites, Coloureds, and Asian-Indians), but also between the sexes (Crankshaw, 1994). Gender and racial inequalities found in most other societies are particularly magnified in South Africa where the marginalized group (Africans) constitutes a majority: 75% of the total population (Buchann and Powell, 2004). In fact, occupational segregation, rather than education, experience, and geographical location, is the largest single identifiable source of race and sex differences in earnings in South Africa and elsewhere (Standing, et al., 1999; King, 1992). Hence, one could argue that at the heart of the matter is the vital question: how do race and gender interact to create class difference (proxied by occupational segregation) between social groups?

To my knowledge, no study has systematically evaluated occupational segregation of various race-sex groups in a nationally representative sample in South Africa. This paper is motivated by the observation that although occupation segregation by race *or* sex has been adequately studied, both theoretically and empirically, knowledge about the processes or determinants *generating* segregation by sex and gender is limited (Reskin and Padavic, 1999; Kaufman, 2002; Charles and Grusky, 2005). An increasing number of studies have highlighted racial differences within a gender (minorities being more disadvantaged than whites) or gender differences within a race (women being more disadvantaged than men).[1] However, few studies analyze race by sex groupings, and so, little is known about the *interplay* between these two systems of social oppression (gender *and* race rather than gender *or* race) in determining

[1] As a result, one would correctly expect minority women, especially African women, to be severely underprivileged in the labor market compared to other social groups.

employment outcomes (Browne and Misra, 2003; Cotter, Hermsen, and Vanneman, 2001; Browne, Hewitt, Tigges, 2001). This is particularly surprising given the striking difference in levels of racial segregation within sexes, but comparable levels of sex segregation within races (King, 1992; Reskin and Padavic, 1999; Tomaskovic-Devey, 1993). Moreover, although a large literature discusses the nature of unemployment in South Africa or the consequence of segregation for earnings, few seek to explain the disproportionate representation of race-sex groups across finely defined labor market positions or geographically. Thus, the underlying issue of concern here is more than just that an individual is employed; the *type* of occupation is also critical. It is these gaps in research that my dissertation will attempt to fill.

General objectives

Using detailed occupational data from the 2001 Census, I will describe and analyze occupational segregation in South Africa, with particular emphasis on the interplay of gender and race. The main objectives of the study are as follows:

(1) To describe the patterns of occupational segregation in South Africa by race and gender

(2) To describe the *separate* roles of gender and race in determining an individual's placement in gender segregated/integrated occupations

(3) To further analyze how one's gender *interacts* with race to determine his/her placement in gender segregated/integrated occupations, while controlling for various individual and household characteristics

(4) To analyze how micro- and macro-level determinants (human capital, family structure, and characteristics of local labor market) interact with race and gender to influence an individual's placement in gender segregated/integrated occupations

Such an approach will provide us with the opportunity to directly compare any social group that differs from each other in terms of both race and gender.

Data and variables

Data

I will use the 10% unit level sample of the 2001 South African Population Census, collected by the Central Statistical Organization, Pretoria, South Africa. It is a nationally representative sample of 4,819,778 respondents residing in 846,479 households across 9 provinces. Standard information pertaining to age, sex, relationship with household head, marital status, education, employment status, migration status, number of children ever born to women aged 12-50, and other demographic events are asked of all members in the household.

The South African Census is useful for studying occupational segregation because of the wide geographic coverage across the nine South African provinces as well as the larger sample size for small occupational groups. Additionally, it has detailed occupational coding (3-, 2-, and 1-digit coding), which makes it particularly useful for computing measures of segregation that tend to be sensitive to greater levels of disaggregation. In the 2001 Census, the first (or 1-digit) occupational level has 9 broad occupational groupings, while the second level includes 27, and the final or third level in the hierarchical system has information for 137 sub groupings.[2]

The sample is restricted to those between ages 20-59 in order to capture, at the lower end, those who may have completed their basic secondary schooling, and in general, those in their prime working years.

[2] A primary limitation of the 2001 Census is its cross-sectional design that only provides a momentary snapshot in time. Hence, this study attempts to study the factors *associated* with gender and racial differences in labor force outcomes, with no assumptions of causality. Although a trend analysis would have been appropriate for this study, the quality of data available (decennial census data since 1911) is problematic because of the racial politics of apartheid (Caldwell and Caldwell, 1993).

The main dependent variable in the analysis— *Gender segregated or integrated Occupation*—is trichotomous and measures the likelihood of being employed in a (1) female-dominated occupation**,** (2) gender-integrated occupation, and (3) male-dominated occupation during the past week. Anker (1998) provides an appropriate, definition of gender-integrated and dominated occupations that is calculated in relation to the average percentage female in the (non-agricultural) labor force. An occupation is defined as *gender-integrated* where the percentage of females in the occupation is between 0.5 - 1.5 times the percentage of females in the non-agricultural labor force. A *female dominated* occupation has more than 1.5 times the mean percentage of females in the non-agricultural labor force while a *male dominated* occupation will have less than 0.5 times of the same.

The key independent variables are *gender* (Females = 1 and Males = 0), and three dummy variables for *race* (Africans, Coloureds, and Asians, with Whites as the reference category). Variables measuring labor 'supply' include human capital are (1) *years of education* and (2) *work experience*. The continuous variable measures *years of education* ranges from 0 (no schooling) to 19 (doctoral degree).[3] One should note that this variable only reflects quantity of education and thus, can be a poor indicator of the real level of education especially for Africans who suffered low quality schooling during apartheid (Seidman, 2000). Additionally, the census data do not contain a direct measure of labor force experience, and I will follow general conventions and measure potential labor force experience as LFE = age - years of education – 6. According to theories of human capital, education would reduce gender discrimination, thus increasing women's employment in gender-integrated or male-dominated occupations. Three

[3] South Africa has twelve years of formal schooling: seven years of *primary school* (encompassing grades 1-2 and standards 1-5) and five years of *secondary school* (standards 6 through 10). To attain a secondary school diploma, students must pass a matriculation exam at the end of secondary school. Historically, very small percentages of Blacks attained secondary school diplomas and even fewer attained post-secondary degrees.

variables: (1) *presence of children under age 5* (2) *marital status* (3) *number of unemployed adults above age 15* proxy family structure and childcare responsibilities. The presence of unemployed (or economically not active) individuals in the household who are above age 15 is include to act as a proxy for childcare facilities that may affect employment opportunities of women with children (especially African women). Marital status has four categories: 1) Married (including a small number of polygamous unions), 2) Cohabiting (but not married), 3) Single (or never married), and 4) Widowed/separated/divorced. The reference group is "Married." *Age* and a quadratic term for age will be introduced as other controls.

Labor 'demand' factors include (1) percent of employed women/minorities in the labor market, (2) percent of service industry, and (3) level of economic development (Semyonov and Shenav, 1988). The economic development index is constructed through household possession as well as facilities or amenities available/acquired by the household. One would expect individuals residing in economically well-developed areas to be employed in more gender-integrative occupations, with the contrary effect for percent service industries. **(Note to organizer: I am still working on this part of the model; apologies for the choppiness)**.

Analytic plan

I will conduct the statistical analysis in three sections: (1) a descriptive analysis of the data, followed by (2) a bivariate analysis of the key dependent and independent variables incorporated in the study. Part (3) will include (multivariate) multinomial regressions with occupational segregation as the dependent variable. The analysis will be carried out separately for blue- and white collar occupations in order to capture various aspects of segregation.

In the first part of the paper, I will present various summary measures (Index of Dissimilarity D, Association Index A etc) to present an overall picture of horizontal and vertical occupational segregation across the various race-sex groups. In the second part of the analysis, I will first estimate simple multinomial regression models that include only race, then only sex, and then both, with no controls in order to see the main effects of race and gender. Race will be included as three dummy variables, with whites as the omitted category. Finally, the sex and race dummy variables will be interacted, leaving white males as the excluded category to which all other groups are compared. The coefficients will represent the extent to which being a member of a racial group has a different effect for women than for men, or alternatively, the extent to which being female has a different effect for members of racial group than for whites.

After that, I plan to estimate a nested multivariate model with controls for several individual, household, and local labor market characteristics; the coefficients on the sex-race interaction terms will indicate an estimate net of the additional control variables. Thus, the effects of the control variables in the model should represent average effects for the South African population of individuals age 20-59.

Urban-rural differences

Apartheid institutionalized African reserves to create patterns of rigid geographic and occupational segregation within the South African landscape, leading to uneven urbanization and development. Hence, the analyses will be conducted separately for urban and rural areas because of the strikingly different labor markets as well as employment opportunities available in both areas. Approximately two-thirds of the population reside in urban areas (although African women predominate in rural areas), and using this dichotomy as a control variable will not enable us to understand the unique and distorted patterns of employment in both regions.